HMAS Culgoa

By Desmond D. Miller. Commodore RAN Retired

My first ship was HMAS *Warrego*. Her only Radar set was a 272 . *Warrego* was in refit. It was Christmas leave period and I was in her for only 2 months.

From *Warrego* I went to *Culgoa*. She was fitted with 276, 286 and 285. The 276/286 office was at the foot of the mainmast, no doubt to enable the shortest straightest aerial feeder runs. The 276 PPI on the bridge was mounted vertically. To gain access to its innards one had to lift it clean off its metal case, and ideally the maintainer needed to be 7 feet tall, of powerful build, in order to avoid serious back damage. The magnetron was spark gap modulated, the moving part of the spark gap mechanism being fixed to the armature of a motor-generator. The spark gap was adjusted by moving the whole motor mounting frame – a fairly clumsy arrangement. In my experience, the 276 was a fairly reliable beast but apart from the Navigator, other bridge officers did not seem to be too interested.

The 286 was a poor performer, mainly because of the slow rotation of the antenna which was controlled by a modified Asdic controller. On the few occasions when we had formal exercises, the “enemy” aircraft came in low and fast, and I don’t recall ever detecting them. Aircraft at a distance and some height could be detected. It was also effective at detecting the tops of distant mountains around the coastline of Japan, much to the satisfaction of our Navigator.

Also fitted in the 276/286 office was a small bulkhead mounted IFFequipment – name unknown. There was no handbook for it, nobody ever asked me to switch it on, and I have no idea whether it worked or not. It had a round opening in the lower front panel labelled “Danger. Explosives”. There was nothing in this tube. I assumed it was highly secret in wartime and was to be destroyed if the ship was in danger of falling into enemy hands.

The 285 Transmitter room was in a small space below deck roughly below the Director. There was just enough clear deck space in this compartment to accommodate a stretcher. I thus had a private sleeping space, a luxury certainly but a necessity also as there was not quite enough space in the PO’s mess to sleep all the POs borne. The display equipment was in a small low space immediately below the Director. Fitted to the top of the Director were 6 Yagi (fishbone) aerials in a horizontal row with a curved metal concave reflector. Transmitter energy was produced by 2 valves, possibly NT99s, joined base to base and mounted vertically at the centre of a cylinder, height about 60 centimetres and diameter about 40 centimetres. It was highly polished and reflective inside - it may have been silver plated. Our instructor at *Watson* told us that you could cook and egg inside that cylinder, but he did not recommend that we try it, because “If you open the access panel and the safety interlocks do not work, it will fry your eyeballs”. An early microwave oven?

I encountered an interesting problem with the 285. No matter what I did, the maximum ranges never reached the ‘book’ figures. I sought the advice of one of the Chiefs at the Port Radar workshop. He accompanied me to the ship and we climbed to the top of the Director. He took a quick look at the director dipoles of the 6 Yagi antennae, told me to undo the middle two, turn them upside down and retighten them. Engraved into the insulating block of the dipoles was its pattern number. He explained that they had to be all up or all down, otherwise the shape of the transmitted beam was distorted. Problem solved in about 5 minutes. *Culgoa* was then about 4 years old. I wonder how many of the 285 Yagis had been improperly installed, and perhaps never corrected.

Thinking back to that time in Culgoa, it seems to me that there was still a deal of scepticism about the reliability of Radar. The 286 was a poor performer as a detector of hostile aircraft. In the use of the 285 gunnery Radar, the few exercises we did were always in the day time and the Gunnery PO in the Director seemed always to produce ranges and bearings which satisfied the Warrant Gunner in the Transmitting Station below decks. As mentioned above only the Navigator seemed to be really interested in what Radar could do to assist him in his duties.